

## MEMORANDUM

<b>DATE:</b>	February 15 <sup>th</sup> , 2016
<b>FROM:</b>	Joe Harrington
<b>SUBJECT:</b>	February Weekly Progress Report @ Gold King
<b>TO:</b>	Steven Way

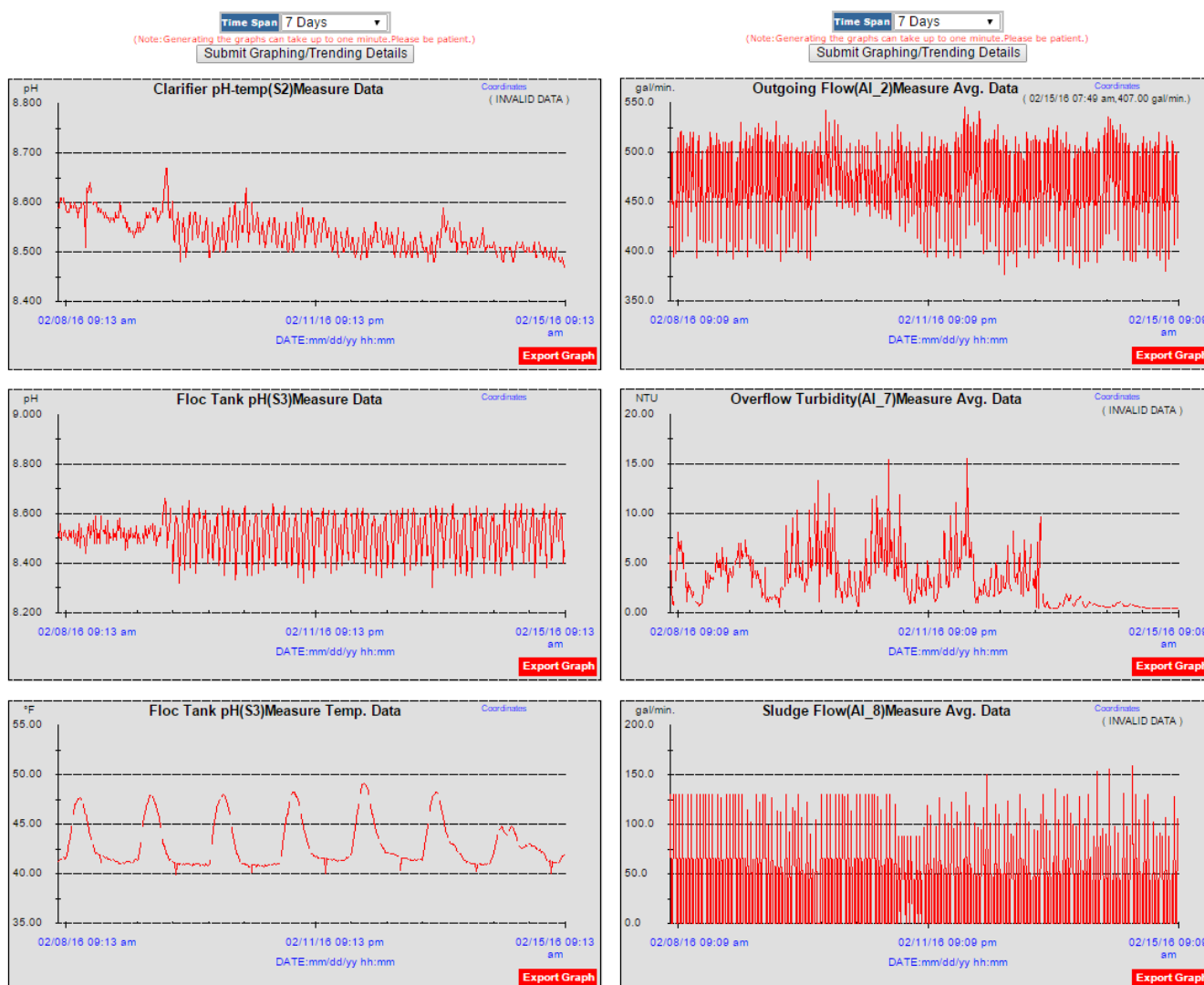
**Project:** Gold King Interim Water Treatment Plant (IWTP)  
**Location:** Gladstone, Colorado  
**Prepared for:** Emergency Response Unit – US EPA Region 8

**Reporting Period:** Feb 8 – Feb 15  
**Report No.:** 8

### I. General Operations Summary:

#### **IWTS Function/Upsets – NO UPSETS during the 7 day period.**

- The following graphs provide trending information collected by datalogging equipment during the previous 7 days. These dataloggers collect control information from the Lime Circuit (left) and Flow Circuit (right) Programmable Logic Controllers (PLCs) at the Gold King IWTP. Over the reporting period (2/8/16 – 2/15/16 inclusive) Alexco treated 4.77 million gallons at an average flow rate of 473 gpm with all discharged treated water leaving the 12" HDPE pipeline. pH and turbidity (the two key indicators of real-time quality) show no upsets to the plant operation during the past 7 days.



- Please note: Several days each week, the Alexco operators check the pH at both the floc tank and clarifier discharge. During this time, the probe is placed in vinegar (acid), and three pH buffers – 4, 7, and 10. While the probe is in the buffer, the datalogger may capture one of those points for tracking purposes, which explains the frequent periodic (daily) pH spikes seen on the graph.

#### **Communication System Function Status**

- No issues –reliable operations during the reporting period.

#### **Facility or System Related Work, including Repairs & Completions**

- Alexco installed a pump, flow meter, and discharge line from the D cell (lowest lined cell) to the flash tank on the clarifier on 1/19/2016. This “pumpback” system can operate between 15 to 60 gpm to reduce or stop the discharge from the textile bags to the creek, and instead send sludge-water back to the clarifier for re-treatment. The injection location of this pumpback system was modified on 2/3/16 to bring water into the bottom of the flash tank where it is mechanically agitated and amended with polymer. This changed location was highly successful (and remains so) at achieving low turbidity from all four overflow trays at the clarifier discharge.

### **II. Identified Problems, Causes, and Solutions (Planned or Implemented)**

- **Door Replacement** - Summit Mechanical replaced the 12' x 14' roll-up door on February 11. The existing door was weighed down by ice/snow, which damaged the chain drive. The new door is of better quality, insulated, and better suited for the extreme conditions at site.
- **Spring Melt Contingency Planning:**
  - **Thickener** - Alexco has purchased a thickener tank to be installed downstream of the clarifier. Alexco is currently sending roughly 30 to 55 gpm of sludge at 1% solids from the clarifier to the bags. With this thickener, the discharge rate will be reduced to between 5 to 15 gpm with an increase in solids to 3% to 5% solids. However, recent changes to the plant (the sludge recirculation system) may delay the implementation of this improvement until closer to the onset of spring melt.
  - **Additional Bags** – Alexco has purchased additional textile bags (2X 125' x 45 and 1X 90' x 45') that are currently located at site and can contain up to 2,000 CY of sludge. Alexco is planning to install one or two of these additional textile bags if needed prior to or during spring melt depending on access and snow cover. These new bags should demonstrate improved performance because of the improved quality of floc mixture and consistent dosing rate.
  - **Planning for reagent delivery to contingency ponds during high flow events** – Alexco is preparing for emergency delivery of flocculant and lime and / or caustic solutions to the inlet to the pond system. Conceptual plan is for splitting the flow so that 900 – 1000 GPM is delivered bypassing the ponds and directly to the plant, while the remaining flow passes through the ponds and spills directly into Cement Creek.
  - **Monitoring of the Pond Complex** – Alexco is researching remote monitoring equipment for real-time quality monitoring at the ponds, including options for pressure transducers, pH, and other quality parameters so that treatment can be deployed rapidly to the ponds if needed. These alternatives will be presented in draft in early March for ER/EPA consideration.
- **Electrical Inspection** – During the service inspection, the local state inspector, Don Nowlin (303-869-3461), had concerns about the type of electric cabling used to connect all equipment and main breaker panels within the plant. This inspector will be questioned further to better understand his concerns and potential updates needed for the plant to pass a final electrical inspection.

### **III. System Inspections – Specific elements inspected and finding**

- The QA/QC box plot analysis of the testing results indicates that the probes deviate beyond acceptable threshold limits around 4 days without cleaning, therefore cleaning has been conducted 3x weekly and will continue at this frequency unless the box plot analysis indicates more frequent cleaning is necessary. Box plot analysis is conducted monthly and reviewed by the Project Director. The Project Director will determine if the replacement of the probes is necessary from inspection of the testing results and if the cleaning and calibration schedule is sufficient. So far two probes have been replaced since November.

#### IV. Site Status

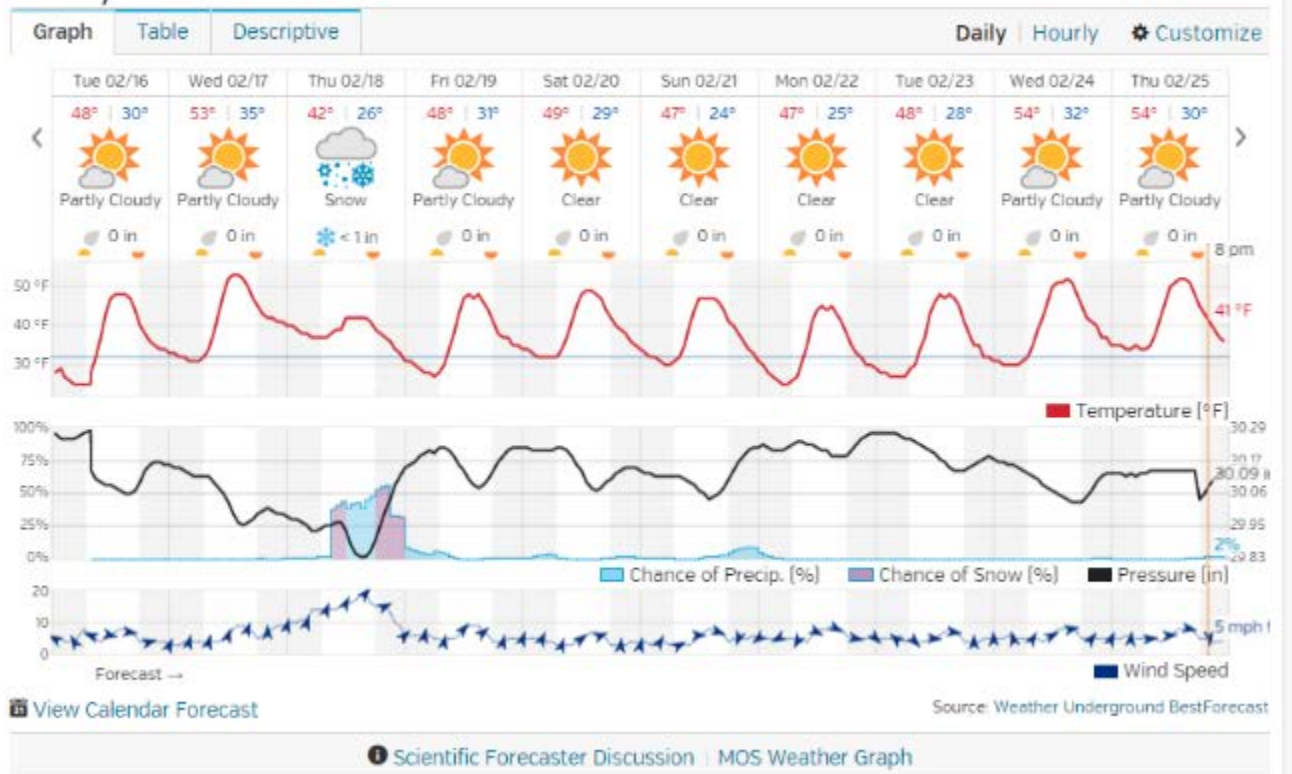
##### Personnel and equipment onsite

- Alexco currently employs two FTEs who live in Silverton that oversee operations at Gold King IWTP.
- Alexco extended an offer and received acceptance on 2/5/2016 from a Mining Engineer (Mark Lawson) who also lives in Silverton. Mark started on Monday (2/15/2016), and is the new on-site lead operator/supervisor after completion of his training/screening (HAZWOPER, drug testing, and operations training by an Alexco managers). In this role, Mark will report directly to Eric Lancaster and was hired because of his analytical skills and his ability to work with modern electronic devices (smart phones, computers, ipads, etc.).

##### Weather conditions

- Weather Underground Report for Silverton, CO (2/16/2016 – 2/25/2016)

#### 10-Day Weather Forecast





## Site Pictures



Figure 1: Site from the upper road – Taken on 2/9/2016



Figure 2: Sludge Bags – Taken on 2/9/2016



Figure 3: Summit Mechanical installed a steel structure to protect the main disconnect –  
Taken on 2/9/2016



Figure 4: Summit Mechanical installed a new 12' x 14' insulated door – Taken on 2/9/2016



Figure 5: Floc tank continues to make large floc that settles well in the clarifier. NTUs are averaging between .5 and 5 over the last few weeks. – Taken on 2/9/2016